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ONE SHILLING

NUCLEAR ENERGY—NATURE, CONTROL and USE

a special supplement contributed by

SIR JOHN COCKCROFT, O.M., F.R.S. PROFESSOR O. R. FRISCH, F.R.S.

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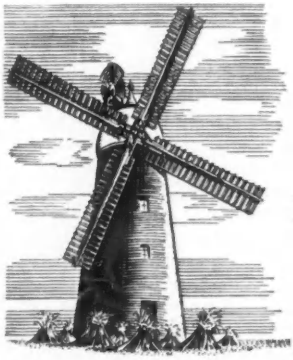

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A dash of disengagement?

Mr. Khrushchev's Berlin time-bomb, dropped in Western laps at the end of November, is due to go off on May 27th.

He proposes that West Berlin should become a free city, politically unconnected with either part of Germany but with unhampered communications and trade both eastwards and westwards; and that East Berlin should be handed over to the East German Government.

Sorry, say the Western Powers, this won't do. We have rights in West Berlin under agreements of 1944, 1945 and 1949 which you can't force us to give up; we won't negotiate under the duress of a time-limit; and we don't trust you or the East Germans to leave an unprotected West Berlin free, even though you say you are willing that "some document should be signed" in earnest of your intentions.

Very well, replies Mr. Khrushchev, whether you agree or not we will still carry out our arrangement with the East German Government which will then exercise full sovereignty over all approaches to West Berlin—a retort which implies at best another blockade; at worst? nobody knows.

Virtually no West Berliners, to judge by December's elections, want a free city on the Russian terms. But as the months wear on towards May it seems unlikely that they will be content to see the West put forward no alternative proposals. For they know as well as anyone that "war is too terrible a weapon to protect Berlin; diplomacy may prove too weak".

But there is a third course. Suppose that the Western occupying Powers were prepared to retire from their sectors of Berlin in favour of a United Nations Force, in return for Russian agreement to follow suit in East Berlin? The presence of such a force (comprised, say, of Irishmen, Japanese, Burmese, Egyptians, Indians, Latin Americans or other contingents whose goodwill is sought by both Russia and the West) might well make all parties hesitate to attack or reoccupy the area. It might even, in the long run, create such stable conditions that orderly change could be contemplated by both sectors, thus setting a pattern for disengagement in Eastern Europe as a whole.

The operation would need initiative and leadership hitherto only forthcoming from Canada and Scandinavia who, as NATO members (except Sweden), would probably be unacceptable to the Communists in this case. Here is an oppor-

tunity for those cold-war neutrals who speak peace to East and West to ensue it by at least proposing such a plan. To many of them Berlin may seem a far-away city of which they know nothing; but Britain found out the delusion of that way of thinking in 1939.

Last lap—but longest

"These men who don't want a suspension of nuclear tests are like a kid you're trying to put to bed", a senior member of the United States Science Advisory Committee is reported as saying last November. "First he wants a drink of water, and then he wants to go to the bathroom, but what he really wants is not to go to bed."

Fortunately, since then "the kids" at the three-Power Geneva conference on the discontinuance of tests have been showing signs of growing up a little. For the first five weeks the battle of draft treaties looked like ending in deadlock.

Then during the second week of December the conference agreed on three articles of an eventual treaty in quick succession. The first two stated that the contracting parties would prohibit explosions in their own territories and would not take part in explosions elsewhere; and would agree to co-operate with the control organisation which the treaty will set up. The third briefly enumerated the parts of the control organisation.

Those were, however, the easy bits. Now the conference has to try to agree on a detailed system of control. Amongst other disagreements, the Russians want the veto to operate in the seven-member control commission (the three nuclear powers plus four others); and the West does not. The Russians want Russians to operate control posts in Russia, Americans to operate them in America, and so on; and the West wants just the opposite. The West wants inspection teams set up ready to investigate any treaty violations; the Russians want them established after a violation has occurred. On these crucial differences negotiations have only just begun.

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APOSTLE OF PEACE

THE Association mourns the death of its great Honorary Life President, Viscount Cecil of Chelwood, which occurred on November 24th. He, with Lord Grey and Dr. Gilbert Murray, founded the League of Nations Union, and was either President or Chairman of it throughout the twenty-five years of the Union's existence. During the Second World War Lord Cecil was President of the London International Assembly organised by the LNU, and from the foundation of the World Federation of UNAs in 1946 he was one of its Honorary Presidents. His outstanding work for peace was recognised by the award of the Nobel Peace Prize in 1937.

Viscount Cecil of Chelwood, C.H.

The following appreciation was written by the late Dr. Gilbert Murray. It is reproduced by kind permission of the *Manchester Guardian*, in which it appeared on November 25th.

Lord Robert Cecil used to be known as a strong High Church Conservative who resigned from the Cabinet rather than consent to Welsh Disestablishment; a less brilliant orator than his brother Hugh, but otherwise of the same aristocratic outlook. True they were never conventional Tory M.P.s. Both of them had fought for women's suffrage and supported Free Trade; but so had their father before them. Then, in Lord Robert's case especially, came a profound conversion through his experience of the 1914-18 war and his work for the League of Nations. He became, in the eyes of the whole country, the apostle of peace and of the League as the instrument of peace.

Immediately after the 1914-18 war he was a conspicuous and successful figure: an inevitable member of any Conservative Cabinet, he had roused enthusiasm in quarters where he felt a little strange. He was liked and trusted by Nonconformists and the Opposition.

After consultation with his friends he decided at last that he could serve the cause better by preserving his freedom and speaking directly to the country. He resigned office, and not only office but his whole prospect of a great parliamentary career. It was a difficult choice; he may have lost some support to the cause itself, but he saved his soul and won the absolute trust of millions of common people.

So much the public saw, but it was only one side of the man. Lady Cecil was sometimes indignant with those portraits of him in which the artist had tried to give him a specially idealist and saintly expression. "He may be rather a saint," she said, "but he isn't a sheep." In private one took for granted his idealism and was conscious chiefly of his charm, vitality,

and unstudied humour. He had his explosions of anger, but a laugh generally followed them. He was not rash himself, but he rather loved rashness in others and had little sympathy with over-caution.

He was sincere, and everyone knew he was sincere. He never tried to outwit his interlocutors: he never tried to score off them. He was free from vanity, and consequently from small irritations. Then, he had a habit of always beginning by admitting the reasonable elements in his opponents' case, explaining how right they were and how their real wishes must be met. By that time he had often won half his case.

The same qualities contributed to his power of leadership. Of course, his colleagues and followers all recognised the authority due to his long experience. He had held great offices, he had conducted momentous international negotiations. But that was not all. Though politics formed the main interest of his life, he had sacrified office and power for his main cause. If he seemed at any time to make a mistake it could never be from the usual motives of human mistakes. Not from vanity, not from personal ambition, not from any weakness or lack of courage, not from any motive that he had to conceal.

He fought to win and expected to win. He protested hard against the Abyssinian surrender, against Munich, against the hypocrisy of non-intervention in Spain. The great apostle of peace became convinced that as a result of false policies war must come. And when it came he never lost heart; he never even lost his cheerful temper in private life. "The first attempt to establish a peaceful world order has not succeeded; we know why it failed and can make it do better the second time."

In his later years he belonged to no party. He once said to a friend, "I am really a Gladstonian Liberal". In several respects, indeed, he was like Mr. Gladstone. Both were religious men and were guided more by moral idealism than by party conventions.

UNEF: a Success Story

by MICHAEL ADAMS

Middle East Correspondent of the *Manchester Guardian*

My first glimpse of UNEF was in February 1957 when it had already completed the first phase of its task, by supervising the withdrawal of the British and French forces from Port Said.

From the Canal Zone UNEF had spread out into the Sinai peninsula, and was following the Israeli forces in their slow retreat towards Gaza and the armistice line. Its headquarters were still at El Ballah, on the bank of the canal some thirty-five miles south of Port Said, but there was an advance headquarters a hundred miles farther east at El Arish, and UNEF controlled all the territory up to the old armistice line except for the Gaza strip and the area around Sharm el Sheikh in the far south of the Sinai peninsula. The second phase was to end a week or two later when the Israelis finally withdrew from these areas, and since then UNEF has patrolled the armistice line and prevented any further raiding by either side into the territory of the other.

In those days, when it was only three months old, UNEF still had the air of an astonishingly successful improvisation. The last of the ten national contingents which were ultimately chosen to take part in it (twenty-three countries had offered to send troops) had only arrived on February 12th. It consisted of five hundred Brazilians, and brought the total strength of UNEF to almost six thousand, of which the largest detachments came from Canada and India, the smallest from the four Scandinavian countries, and the others from Colombia,

Yugoslavia, and Indonesia.

Apart from their blue berets there was scarcely any common denominator among them, and there were obvious difficulties of language and professional or even social practice. Relations with the Egyptian authorities were uncertain, and were to grow worse when the Israelis finally abandoned Gaza early in March 1957, and a dispute threatened over the question of who should be responsible for the administration of the Gaza strip with its quarter of a million Palestinian refugees.

Relations with Egypt

Today UNEF is firmly established and on excellent terms with the Egyptian Government. Indeed its success in executing the task entrusted to it by the General Assembly has been a factor in the general improvement of relations between the Egyptians and other United Nations organisations (the main factor has been the energy and impartiality of Mr. Hammarskjöld).

The refugees and the indigenous population of Sinai and the Gaza strip have benefited from the presence of UNEF, which buys what supplies it can locally and provides employment for a considerable number of drivers, messengers, boatmen, and camel drivers. The blue berets are familiar now, and reassuring. They are in Egypt with the Egyptians' permission, and the Egyptians know their value as well as anyone.

Visiting UNEF again on United Nations Day I found few changes on the surface, but a far more assured air of practised routine in its functioning. What might have been the same little clumps of Scandinavian or Indian or Colombian soldiers stood guard in the chain of outposts along the border of the Gaza strip, training their binoculars (with a concentration that was slightly self-conscious under the visitors' eyes) on the empty landscape of Israel. But behind them the network of platoon and company positions reaching back to the headquarters in Gaza, with its administrative base at Rafah, and its air transport and signals base at El Arish, had no longer any look of improvisation about it; transport and supply (key problems in an area of rudimentary communications), patrol work, by air as well as on land, to prevent infiltration across the border, liaison

UNEF Yugoslav troops on patrol duty near El Arish.

with both the Egyptian and the Israeli authorities — these were organised on what was evidently a tried and successful pattern.

In its composition the force has changed only slightly since its early days in the aftermath of Suez. The Finnish and Indonesian contingents have been withdrawn, and the Colombians are on their way home now. All the other contingents are replaced, some yearly, some half-yearly, by fresh troops from home, and one or two of them have been strengthened, so that General Burns still has a command of about five thousand men, drawn from eight countries, and equipped with their own transport and a fleet of aircraft, Dakotas for supply and troop transport, single-engined Otters for observation work.

Nothing, of course, can alter the engaging idiosyncrasies of such an army, with its rich contrasts between one detachment and another, and between all of them and their remote and inhospitable field of operations. The Scandinavian eye for interior decoration creates an attractive restaurant out of a messtent planted in a sand dune, and on the table lie copies of the Copenhagen newspapers, only two days old (a tribute this to UNEF's own communications system with the outside world); but the daily supply convoys which go out from the company base to one particular outpost manned by Danish soldiers must travel on the backs of camels, since no wheeled transport can carry the heavy containers of food and water through the loose sand.

Unique task

The celebrations which marked United Nations Day in Gaza were full of these contrasts. In the parade which was held on Gaza's dusty airstrip (within a mile or so of the nearest Israeli kibbutz) all the contingents joined in a march-past to salute the United Nations flag, with the Yugoslavs providing an armoured detachment, Canadian pilots flying in formation overhead, and a splendid Indian pipe band bringing up the rear ("Over the Sea to Skye" sounding out strangely in the bright Mediterranean sunshine).

When the Indian Chief of Staff, Colonel I. J. Rikhye, deputising for General Burns, spoke to the men of UNEF after taking the salute, there was no rhetoric in his description of the "unique task" given to UNEF by the General Assembly, or when he told them that this first truly international force was "symbolic of the hopes and desires of mankind". Nor could one quarrel with his claim that the best proof of the efficacy of the UNEF experiment was "the absence of any major incident along the border since the force was established".

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THE ENERGETIC NUCLEUS

by Professor O. R. Frisch, O.B.E., F.R.S.

The Author is Jacksonian Professor of Natural Philosophy in the University of Cambridge

IN 1903, P. Curie and A. Laborde published a short note reporting that radium gives off heat all the time, producing each year a hundred times as much heat as the same weight of coal produces when it is burnt. Furthermore, the rate of heat production was quite independent of whether the radium was studied as a pure metal, as a solid chemical compound, or in solution; and it was not affected by heat or pressure. Clearly this was a novel kind of energy source, and in 1911 (Lord) E. Rutherford found that each atom has a tiny nucleus in which nearly the entire mass of the atom is contained, and that the energy of radium comes out of its nucleus.

The sun

But all through the ages life on earth has been dependent on another seemingly inexhaustible source of heat and radiation: the sun. Today we know that its energy, too, is not chemical—no chemical compounds can exist at such fierce heat—but comes from the fusion of hydrogen nuclei in the very centre of the sun where the heat approaches 20 million degrees centigrade.

Those two energy sources—radium and the sun—demonstrate the two ways in which energy can be obtained from atomic nuclei. Radium nuclei are among the heaviest that exist: they are overweight and hence unstable, and occasionally one of them will break up into two smaller ones. Even in a small piece of radium, many millions of those fragments are flung out every second, and by their friction they heat up the material through which they pass. Hydrogen nuclei, on the other hand, are the lightest of all, and at the enormous heat at the sun's centre they tend to combine into heavier nuclei, again liberating energy which appears as heat.

Radium is much too rare and expensive to be useful as a fuel; and the much cheaper uranium (which has the heaviest nuclei found in nature) takes even longer to give up its energy (some 2,000 million years!). It took over thirty years of research before the behaviour of nuclei was well enough understood so that methods could be devised to extract their energy at will.

First nuclear reactor

That such a method might be feasible had just become clear when the war broke out in 1939. Belligerents on both sides saw the possibility of a new explosive, vastly more powerful than any known one, and great means were put at the disposal of scientists, particularly in the U.S.A. Yet the first liberation of nuclear energy was not an explosion but a quiet trickle of energy from a pile of graphite blocks and uranium rods—the first nuclear reactor—erected by Enrico Fermi and his co-workers in a disused squash court in Chicago. This happened on December 6th, 1942; on August 6th, 1945, Hiroshima was laid in ruin by an A-bomb.

In both cases the energy came from the splitting (the "fission) of nuclei of uranium atoms, more precisely of those nuclei (about one in 140) which have atomic weight 235 and are briefly called U-235. When a U-235 nucleus is split in two, several neutrons are chipped off as well (neutrons are just like hydrogen nuclei, only without electric charge). Each of them if it strikes another U-235 nucleus can cause it to suffer fission as well, and so we get a chain reaction spreading like a forest fire. Why, then, does one get controlled energy production in one case and a devastating explosion in the other?

Well, when Fermi built his first pile

he started with a small one from which most of the fission neutrons would escape without hitting a U-235 nucleus. Then, with a source of neutrons present, he slowly added more graphite and uranium until a chain reaction became possible. One might think that when the critical point was reached the reaction would get out of hand, but that is not so. In the first place, a small fraction of the fission neutrons is sent out, not at the time of the fission but a few seconds later, by one of the fragments. The chain reaction has to wait for these delayed neutrons and will grow only slowly even if the critical point is passed; one can watch the fission rate and insert a neutron absorber—a rod made partly from cadmium or boron—if it gets too high. But even if the reaction should become independent of the delayed neutrons, there would be only a feeble explosion because the neutrons are slowed down in the graphite and take about a hundredth of a second to find a U-235 nucleus. Modern power reactors contain additional safeguards and it is quite unthinkable that they should explode.

The A-bomb

An A-bomb, on the other hand, is made from almost pure fissile material such as U-235 which, when we want it to go off, is very rapidly compressed into a compact shape so that the first neutron that comes finds conditions very favourable for a chain reaction. Here the neutrons are not slowed down and so they multiply with incredible speed: within a millionth of a second the inert metal ball is transformed into a ball of fire, millions of degrees hot; expanding with enormous violence, the hot gas slams into the surrounding air and creates a shock wave that can crush buildings a mile or so away.

I mentioned that uranium is a mixture of two "isotopes", one of which is U-235. The much more abundant U-238 has far less tendency to suffer fission and interferes with the chain reaction by absorbing part of the neutrons. Hence it pays to "enrich" uranium by removing part (or even most) of the U-238. That is an expensive process, done by passing gaseous uranium hexafluoride many thousand times through porous metal membranes, as in the "diffusion plant" at Capenhurst. But it is well worth doing because the enriched uranium allows the designer to worry less about neutron loss and thus gives him greater freedom, particularly in designing small reactors.

Fissile and fertile materials

Actually the absorption of neutrons in U-238 gives us a very valuable by-product. On absorbing a neutron, a U-238 nucleus becomes one of U-239, which within a few days turns into Pu-239, an isotope of the man-made element plutonium. This suffers fission even more easily than U-235 and is therefore very suitable for making both A-bombs and reactors. A third fissile material is U-233, which can be made from thorium (Th-232) just as plutonium is made from U-238. Thorium is more abundant than uranium, and while it is not "fissile" (capable of supporting a chain reaction) it is a "fertile" material which can be transformed into a fissile one by exposure to neutrons in a reactor. That process may become important when our reserves of uranium (which are ample at present) begin to drop.

When a uranium rod has been in the reactor for some months it becomes distorted and bloated by the fission fragments and must be taken out and reprocessed by automatic or remotely controlled chemical equipment behind thick walls, because the fission products are radioactive and their radiation is very dangerous to living beings. At the other end of the chemical plant three products emerge: the purified uranium, which is again fabricated into rods (perhaps after some enriching) and returned to the reactor; the plutonium, to be used in special reactors or for atomic weapons (A-bombs or H-bombs); and the fission products which must be disposed of

Remote handling of istotopes at the Radio-Chemical, Centre, Amersham. The wall is of lead brick and the window of lead glass.

rather carefully. They must not be thrown in the sea because they might make fish radioactive enough to be dangerous to people who eat them; even dropping them in sealed containers into the deep ocean is not considered quite safe. The best scheme at present seems to be to mix them with concrete and store the concrete blocks in a safe place.

Radio-isotopes

Some fission products, for instance, radioactive iodine, can be used in medicine, research or engineering; other radio-isotopes are "made to measure" by exposing ordinary elements like sodium, phosphorus or cobalt. Radio cobalt sends out penetrating gamma rays and is used in the treatment of cancer instead of radium; it is just as good and very much cheaper so that hospitals can afford much stronger sources. Radioactive sodium and phosphorus and many others are chiefly used in biological and medical research; their radioactivity, which even in minute amounts can be measured, allows us to trace their path through the organism and thus to tackle unsolved questions of metabolism. This use of "tracer" isotopes is probably as important an advance in biology as the invention of the microscope was, over two hundred years ago.

So much for the fission of heavy nuclei; what about the fusion of light ones? Well, so far only the explosive fusion has been achieved, that is, the H-bomb. Weight for weight, the H-bomb explosive is not much more powerful than the plutonium in an A-bomb; but much more of it can be packed into one bomb because it won't go off until part of it is heated to some million degrees by an A-bomb which serves as detonator. Only at that tremendous heat, a thousand times hotter than any furnace, can the nuclei begin to interact; once that happens the material gets much hotter still and the whole reaction is over in a flash that can be seen for hundreds of miles, while the shock wave will destroy anything within ten miles or so, and the heat flash may scorch and kill in an even wider circle.

That destruction is shocking enough; but in addition there is the fallout. The hydrogen explosive as such does not produce much radioactivity; but the A-bomb detonator does, and so does the shell of uranium (natural, or even U-238) which can be placed around the bomb to get extra explosive power from its fission, caused by the neutrons emitted from the fusing hydrogen. If that shell is omitted the bomb is less "dirty"; but to call it "clean" is misleading, because there is still the radioactive material from the explosion of the A-bomb detonator Some of this material falls out of the atmosphere close to the explosion, and some thousand square miles can be rendered lethal; the rest stays in the atmo-

sphere for a long time—some of it for years—and gradually poisons a large part of the earth. Some of the fission products —in particular radio-strontium — contained in food will become deposited in the bones of people; already there is enough of it to cause, very probably, a significant increase in the incidence of bone cancer and leukemia. In addition the increased irradiation of gonads will increase the mutation rate, and this genetic effect is cumulative; we must expect the number of mentally or bodily defective children to rise gradually for some generations to come. If there were a major nuclear war all these effects would of course be very much greater.

There is some hope that nuclear fusion will be tamed so as to generate energy in a controlled manner. The great difficulty is in producing and containing temperatures in the million degree range. Some advance has been made and vigorous research goes on here as well as in the U.S.A. and the U.S.S.R. The "fusible" material would be the heavy hydrogen (deuterium) nuclei which are present, one in about 5,000, among the hydrogen nuclei in water. The cost of extraction is high but would be insignificant if the fusion energy could actually be utilised. Of course fusion power-plants may be expensive; but our fuel problem would be solved for the next million years, as if the oceans had been turned into oil a hundred times over.

NUCLEAR DISARMAMENT

by Ieuan G. John

Lecturer in International Politics in the University College of Wales, Aberystwyth

THE explosion of the two atomic bombs over Hiroshima and Nagasaki constituted a revolution of unprecedented magnitude in military technology and strategy and initiated a process which continues at an increasing and frightening tempo. The destructive capacity of these and the later thermo-nuclear weapons are now well known. Their existence together with the rapid development in the means by which they can be delivered to their target, faster and longer range manned aircraft, ballistic missiles, nuclear-powered submarines able to cruise submerged for long periods at high speeds, render effective or meaningful defence against attack impossible. Possession of such weapons has increased mutual fear between the powers. It is this fear which has prompted governments to seek the limitation, abolition and control of these weapons and simultaneously to augment their nuclear power and either maintain or achieve a nuclear superiority. The negotiations for nuclear disarmament record these divergent motives and aims.

Another factor which must be considered is that the longer the nuclear arms race is permitted to continue, the greater the danger that the possession of these weapons, now confined to three powers, will spread, thus making the achievement and implementation of a disarmament agreement infinitely more difficult.

The emergence of nuclear weapons has posed a challenge which demands a response of an entirely new and indeed revolutionary character. In the autumn of 1945 few statesmen had any doubts either about the implications of these weapons or the magnitude of the measures required to control them. As early as November 15th the President of the United States, the Prime Ministers of Britain and Canada issued a statement in which they declared that the application of the new scientific discoveries to the practice of war had provided mankind with "means of destruction hitherto unknown, against which there can be no adequate defence, and in the employment of which no single nation can in fact have a monopoly". They proposed the establishment of a United Nations

Commission to deal with the international control of atomic energy.

On January 24th 1946 the first General Assembly of the United Nations voting unanimously created the Atomic Energy Commission, composed of members of the Security Council plus Canada, and entrusted it with the task of developing specific proposals for

(i) extending exchange of basic scientific information for peaceful ends;

(ii) the control of atomic energy to the extent necessary to ensure its use only for peaceful purposes;

(iii) the elimination from national armaments of atomic weapons and of all other weapons adaptable to mass destruction;

(iv) effective safeguards by way of inspection and other means to protect complying States against the hazards of violations and evasions.

Plan for international ownership

During the early months of 1946 a United States Committee composed of eminent scientists and public men was studying the problem of controlling this new power. This body in turn set up a Board of Consultants, which included Mr. David Lilienthal, Chairman of the Tennessee Valley Authority, and Dr. Oppenheimer, leader of the scientific team engaged in making the atomic bomb at Los Alamos. In view of the present situation with regard to nuclear disarmament, it is worth quoting the following section from the report of the Board:

> "Our absorption in this task . . . is relevant as a measure of how important and urgent we feel it to be that the government and people of the United States develop a rational and workable plan, before the already launched armaments race attains such momentum that it cannot be stopped."

They considered that inspection alone was inadequate to prevent individual nations from manufacturing atomic weapons, if they had the knowledge and the plant for developing atomic energy. In order to prevent fissile material from being diverted to military purposes, it was necessary to control every stage in the process of atomic energy production from the extraction of ores to the making of atomic weapons. They therefore made a revolutionary proposal. An International Atomic Energy Authority should be established under the United Nations, which should undertake the mining of uranium and thorium, the ownership and management of refineries to transform the ore into metals, ownership of the materials produced, the construction and operation of atomic reactors and research into atomic power development. The staff of this Authority would consist of highly qualified scientific personnel, internationally recruited, and having the status of international servants, comparable with the members of the United Nations Secretariat.

These proposals were accepted by the United States Government and were presented by its delegation to the Atomic Energy Commission on June 14th 1946. It was emphasised that the Authority was to have full powers of inspection, not subject to any veto, in order to ensure detection of clandestine atomic activities. The system of ownership and management was to be established in stages, and when it was in full operation, the manufacture of atomic weapons would be prohibited and existing stocks of nuclear weapons disposed of, the fissile material being converted to peaceful uses. After long discussions the Western Powers and the majority of the Commission supported the plan with some modifications. It was a revolutionary plan, the implementation of which would have involved far-reaching limitations on national sovereignty. The Scientific and Technical Committee of the Atomic Energy Commission, after examining the plan, concluded that they could not find any basis for supposing that effective control was not technologically feasible. But the plan was rejected by the Soviet Union, which in its own counter-proposals insisted on the prohibition of the use and manufacture of atomic weapons, the destruc-

tion of existing weapons and the establishment of a control system in that order. The Soviet Union saw in the plan an attempt to establish control over its own atomic development while the United States maintained its atomic monopoly. Naturally the United States was not disposed to destroy its atomic weapons, until it was reasonably certain that the control of nuclear activities was effective. However rather than seek the modification of the plan to safeguard her legitimate interests, the Soviet Union preferred to reject it.

The plan was a bold initiative, and many would still regard it as the only real and effective solution to the problem, and one that measured up to the fundamental challenge of the nuclear age.

International control and inspection

Although the United States plan was approved by the General Assembly of the United Nations in 1948, the deadlock continued. In July 1949 the Atomic Energy Commission voted to suspend its work. The explosion of the Soviet atomic bomb in September 1949 altered some of the assumptions on which the ownership plan had been based. On January 11th 1952, after a period during which the Soviet Union had boycotted United Nations organs, the General Assembly established a Disarmament Commission to replace the Atomic Energy Commission and the Conventional Armaments Commission. It was charged with the task of preparing a draft convention for the limitation of all armed forces and armaments, for the elimination of all major weapons, adaptable to mass destruction, and for effective international control of atomic energy.

Up until 1954 the Western Powers still formally adhered to the orginal plan, but various statements during 1953 by their spokesmen indicated a gradual shifting from the ownership and management approach to control and inspection. A sub-committee of the Disarmament Commission composed of representatives of the U.S.A., U.S.S.R., the U.K. and France was formed to continue negotiations and report periodically to the Commission. In April 1952 the Soviet Union modified its previous position that prohibition of atomic weapons should precede the establishment of control, now agreeing that they should take place simultaneously. However, they insisted that an international control system should not intervene in the domestic affairs of States. These new proposals were still regarded as inadequate by the Western delegates. The announcement by the Soviet Union that it had exploded a thermo-nuclear bomb indicated a quickening tempo of nuclear weapon competition and stressed anew the urgency of an agreement on nuclear disarmament.

On June 11th 1954 the British and French delegations presented to the disarmament sub-committee a plan which provided for total prohibition of the manufacture of nuclear weapons and the conversion of existing stocks to peaceful purposes. These measures were to be carried out in stages parallel with reductions in conventional armed forces. An international control organ was to be set up to ensure that these obligations were loyally implemented. No stage in the disarmament process was to commence unless the control organ was satisfied that the previous stage had been effectively carried out by all States.

This plan did not define the character and powers of the control organ, but statements by both delegations in the following months implied that the ownership and management concept was no longer being advanced. A United States paper had outlined the structure and powers of a United Nations Disarmament and Atomic Development Authority, which would be given considerable powers of inspection freed from any veto. The Western Powers supported this proposal. In April 1955 the Western Powers stressed that an effective system of control should operate throughout the whole disarmament process, that there should be a single control organ established before disarmament commenced,

and that it should be equipped with expanding powers to supervise the successive stages of disarmament. At first the Soviet rejected the Anglo-French proposals, but in the General Assembly in September 1954 Mr. Vyshinsky accepted them as a basis for future disarmament negotiations. But the Soviet Union still insisted on the complete prohibition of the use of nuclear weapons. It was furthermore only prepared to envisage a preliminary control organ of limited powers to be followed at a later stage by an organ with wider authority. In April the Western Powers went some way to meet the first point, by suggesting that when one-half of the reductions in conventional armed forces had been made, new production of nuclear weapons should cease, and that when three-quarters of conventional reductions had taken place, there should be complete prohibition of use of nuclear weapons, and that final reductions in conventional armed forces and the elimination of nuclear weapon stocks should be completed simultaneously.

Soviet proposals

On May 10th, Soviet proposals were presented which incorporated a considerable part of the Anglo-French plan. They accepted disarmament in stages, the idea of a single control organ with expanding powers, with an internationally selected staff, continuous inspection with unimpeded access at all times to all objects of control. There were still some differences on some aspects of control between the Soviet Union and the Western Powers, but it was a major advance on previous Soviet positions, and was recognised as such by the Western delegates. The United States delegate said that the Soviet proposals accepted in a large measure the concept put forward by his government. It was the first occasion on which there had been such a large measure of agreement on such a wide range of issues. It was all the more surprising that a few days later the subcommittee adjourned its meetings until August 29th on the proposal of the Western delegates, despite the great reluctance of the Soviet delegation.

On September 6th, some days later, when the sub-committee had resumed its meetings, the United States delegate declared that his government placed a reservation on all the positions taken up by it in the sub-committee and Commission previous to the Geneva Heads of States Conference. And in later discussions it became clear that the Western Powers had abandoned the plan for total nuclear disarmament. The reason repeatedly given by the Western delegates was that it was now technically impossible to detect accurately the amount of accumulated stocks of nuclear weapons, and they pointed to the fact that the Soviet Union had stated this in its May 10th proposals. In the Western view this meant that there was a danger that a State might secretly retain illicit stocks of weapons or fissile material, in spite of the provision for their elimination or conversion to peaceful uses. Such a power would then acquire military supremacy. But it seems that this was no new fact. Dr. Oppenheimer had pointed out this danger in 1945. It could be argued, therefore, that this very problem was the more reason why an agreement should be concluded as soon as possible; the longer the delay, the larger the stockpiles would become and the larger the proportion that could be secretly retained. It was perhaps unfortunate that the Western Powers had not made their position on stockpiles clearer before they pressed their proposals on the Soviet Union, proposals which included the total elimination of stocks of weapons and fissile materials. Their retreat from total nuclear disarmament in the summer of 1955 ended the attempt to achieve comprehensive nuclear disarmament.

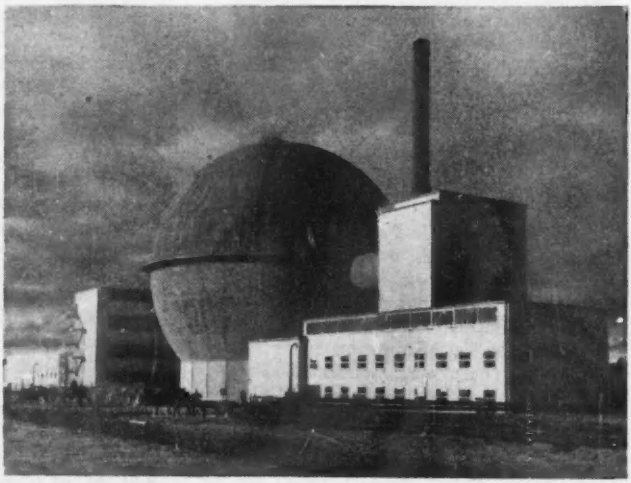
Partial disarmament

Western unwillingness to contemplate any plan involving the total elimination of nuclear weapon stocks and fissile material, while there was no scientific

method of accurately estimating their size or detecting illicit stocks, caused them to shift the emphasis to securing partial disarmament in nuclear weapons together with reductions in conventional forces as interim measures towards an eventual comprehensive disarmament agreement. During 1956 and 1957 the development of this new approach and its precise formulation was complicated by the successive intrusion of new and individual proposals before, during, and after the Geneva Heads of State Conference in July 1955. They included measures for effective warning against surprise attack, the Eisenhower "open-skies" proposal for mutual aerial reconnaissance, the United States proposal for control of outer space, and the Soviet proposal for prohibition of nuclear tests independently of any wider disarmament agreement.

destruction of stockpiles. The Western Powers advocated the diversion of all future production of fissile material to non-military purposes, to begin one month after the control organ had stated that the inspection system could effectively supervise the carrying out of the obligation. They also suggested successive transfers on an equitable basis of fissile material from past production to non-military uses, but not the complete elimination of nuclear weapon stocks.

The question of stopping nuclear tests began to loom larger as the hopes of a comprehensive disarmament agreement faded. In April 1957 the Soviet Government had made partial disarmament proposals, in which they singled out the discontinuance of nuclear weapon tests as a task of special urgency. The Western Powers' response was to insist on controls. In



The fast fission breeder reactor at Dounreay, Caithness. This will produce great heat for steam raising. Electric power will be generated by turbo-alternators driven by the steam.

It was not until March and August 1957 that the Soviet Union and the Western Powers put forward new and precise proposals. The former still envisaged the prohibition of the use of nuclear weapons, of their manufacture and that of fissile material, to be followed by elimination of the weapons from national armaments, and the

June the Soviets agreed to control over tests through a network of posts in the U.S.A., Soviet Union, U.K., and the Pacific Ocean. This was welcomed by the West as a major concession, and they declared themselves ready to refrain from conducting tests for twelve months as soon as agreement had been reached on the installation of the control posts

envisaged in the Soviet proposals. If, after the twelve months of test suspension, the inspection system was operating to mutual satisfaction, and if progress was made in setting up a system to control cessation of the production of fissile material for military purposes, they would be ready to continue test suspension for another twelve months. But if at the end of a twenty-four month period the inspection system to control the "cut-off" of nuclear weapon production had not been put into operation, each government would be free to resume tests.

But the Soviet Union rejected this proposal, declaring that it could not accept control of its nuclear plants until all such weapons were prohibited, whereas the Western Powers remained firmly opposed to the total prohibition and elimination of nuclear weapons while there was no effective method of detecting illicit stocks.

Outside UN

In the autumn there was an almost complete deadlock in the disarmament talks, which were now discussed before the UN General Assembly. On November 14th that body passed a resolution which supported the Western viewpoint as defined in their proposals of August to the sub-committee, but an amendment was attached, which recalled a previous Assembly resolution of 1954 calling for the total elimination of nuclear weapons. The Assembly rejected a Soviet demand for the reorganisation of the Disarmament Commission to include all members of the UN, and instead created a twenty-five member body. Since this time the Soviet Union has boycotted this Commission and its sub-committee, and disarmament discussions have been carried on outside the framework of the United Nations.

President Eisenhower's statement on March 26th, 1958, that the United States might be willing to "conclude a reliable agreement" to cease tests without insisting on a "cut-off" in production of fissionable material for weapons purposes, seemed to indicate a modification of the Western position.

Pressure for agreement increased after March 31st when the Soviet Government announced that it was unilaterally halting tests, but that if other powers continued testing, it would regard itself able to "act freely". The other powers were invited to follow its example. The United States responded by asking the Soviet to agree to a conference of technical experts to study control measures, but renewed the emphasis on need for a "cut-off" of production of fissionable material for military use. Soviet Government, however, agreed, and on July 1st seven Western and eight Soviet and Eastern-European scientists met in Geneva to examine the question of control and detection of tests. At the end of August they concluded that an effective detection system was technically possible. It would involve between 160 and 170 ground detection stations distributed throughout all the continents. In September the U.S.A., U.K., and the U.S.S.R. agreed to meet at Geneva on October 31st to discuss the suspension of tests and setting up of a control system. The Western powers were ready to suspend tests for a year from the 31st, provided the Soviet Union did not resume theirs, and they were also prepared to stop tests for a further year, if the Soviet Union reciprocated and if satisfactory progress was made towards an effective control system. Soviet refusal to join in suspending tests for a year from October 31st was not a very favourable augury for the success of the conference. Moscow accused Britain and the United States of wanting to achieve military superiority over the U.S.S.R. It demanded an immediate, universal and permanent ending of tests, and claimed its right to continue tests until they equalled the number of Anglo-American tests conducted since March 31st. The conference at Geneva has not yet succeeded in agreeing on the agenda, the Soviets wanting to give priority to discontinuance of tests, the

West insisting originally on prior consideration of a control system but now prepared to examine test suspension and controls simultaneously.

The central issues of nuclear disarmament at present are the ending of tests, cessation of future production of nuclear weapons and diversion of fissionable material produced to peaceful purposes, the total elimination of weapon stockpiles and conversion of fissionable material stocks to non-military purposes, and the establishment of an effective international control system capable of ensuring the implementation of each of these measures. There has, on occasions, been a wide degree of agreement between the powers on some of these points. However as the nuclear arms race continues, fear and mistrust have increased. The Soviet on the one side and the Western Powers on the other have put forward proposals of such a nature as to preserve or gain a margin of military advantage. Thus the Soviet Union is prepared to halt tests independently of a wider agreement or they are prepared to discuss a total abolition of nuclear weapons including elimination of nuclear weapon stockpiles. The Western Powers have pressed since 1956 for partial disarmament, which includes and stresses the need for a "cut-off" of future weapon production. However, the Soviets counter that this would expose them to controls, and because the United States has a larger stockpile both of weapons and fissionable material would maintain the latter's nuclear-weapon superiority, while depriving the former permanently of the chance of catching up. The West will not on its part agree to the total elimination of stockpiles because of risk of retention of secret stocks. It is pertinent to ask whether the risks involved in total nuclear disarmament under international control are not preferable to the risks of continuation of the nuclear arms race, in which the issue of the superiority of one or the other side in nuclear weapons is almost irrelevant since each already possesses the capacity to destroy the other.

PROSPECTS OF THE NUCLEAR AGE

by Sir John Cockcroft, O.M., F.R.S.

Member for Scientific Research of the United Kingdom Atomic Energy Authority

RECENTLY I had the pleasure of taking part in a debate at the Cambridge Union. The motion under discussion was: 'That this House believes that the world has been the loser from the splitting of the atom." I opposed this motion, which was defeated, and in doing so had to turn my thoughts to the very important ways in which the world can with wisdom obtain benefits far outweighing the devastating use which was most people's first introduction to fission.

Like all other people, I hope that we will never have to use nuclear weapons. If we learn to live in peace, then the enormous energy of the atomic nucleus will be able to provide for the world a great part of the ever-increasing supplies of energy which will be essential if living standards are to continue to increase.

By the end of the century our energy requirements are likely to increase three or four times and, therefore, in the year 2000 we will need the energy equivalent of another 6,000–9,000 million tons of coal. We will certainly not get this from coal or oil or hydro-power and nuclear energy must do a great deal towards filling the gap. Even if we look only two decades ahead there are knowledgeable fuel experts who believe that by then we will be within fifty years of exhausting world oil reserves.

We can also foresee that by then,

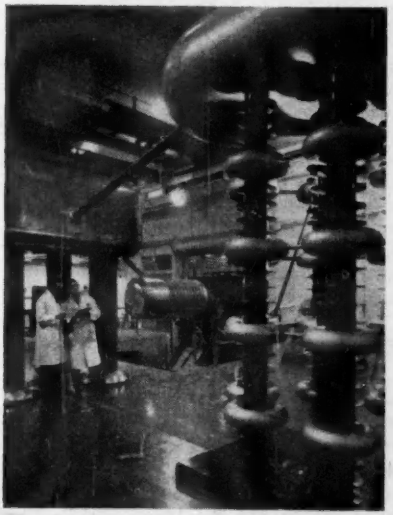
without nuclear energy we in the United Kingdom will be relying far too heavily on oil imports. We have made a great start towards relieving this dependence by our initial programme of building at least twelve great nuclear power stations and by 1966 these should already be generating about a quarter of our electricity, while by 1975 we should be generating half our electricity from nuclear power stations and saving the equivalent of thirty million tons of oil a year, so cutting our oil imports substantially and reducing our foreign exchange requirement by a very large sum.

In the under-developed countries

Nuclear energy will be generally essential to many of the under-developed countries if we define these countries by their low income per head. A few weeks ago I was in Japan. Their income per head is only one-fifth of ours but is rapidly increasing and their electricity requirements are doubling every seven or eight years. Without nuclear energy they would be importing half their fuel supplies by 1975. India has a *per capita* income one-fifteenth that of Britain and power consumption per head is in the same ratio. Even with the recent development of hydroelectricity and indigenous fuel three-quarters of the energy now produced in India comes from burning cow dung, which is needed as fertiliser; Indian coal reserves could only supply the present level of use for about 100 years. In so far as any large increase in the standard of living in countries like India will involve the use of much more power, this can only be made available by the use of nuclear energy.

It is evident, therefore, that if we are not to see a cut off in the rise of standards of living throughout the world, nuclear energy must be energetically developed. For this reason alone we must be grateful for nuclear power.

Even without the contribution that nuclear power will make to our future living standards, much has been added to the credit side by the use of those so-called by-products of atomic energy, radioactive isotopes. These have made their contribution in agricultural research, in



The Cockcroft-Walton high-voltage generator at Harwell with the injector of the proton linear accelerator in the centre-background. This apparatus gives the very high speed particles required in the production of new isotopes, for the transmutation of elements, and for investigating the nature of the "atomic glue" that holds the basic constituents of atoms together.

industrial research and processes, but to an even greater extent in the world of biology and medicine. They have provided a new tool, probably even more important than the microscope, and as a result advances have been made in knowledge of diseases, in methods of diagnosis and in treatment, which may well have been impossible without them. The advantages thus gained have been used throughout the world, and the collaboration which has taken place

has provided an outstanding example of international co-operation and exchange of scientific knowledge. Many volumes have already been filled with the results of the work which has been achieved, all of it beneficial.

Tracers

The Biological Revolution of the next half century will owe a great deal to the radioactive tracers which enable the biochemist to unravel the very complex processes of the living organism. At the recent Geneva Conference we were shown how tritium has been incorporated into thymadine, which then builds itself into the cell nucleus and enables the biologist to study the important process of chromosome division. This is only one example out of hundreds.

Hazards in perspective

Fears have been expressed that nuclear energy will bring new hazards to the world from the radiation which is inextricably mixed up in people's minds with atomic and hydrogen bombs. Suppose, therefore, that we consider the facts. We have during the last twelve years built up an atomic energy industry in Britain which now employs over 30,000 people. During these years not a single person has been seriously harmed by radiation and the records kept of the radiation doses of all our employees show that we have a good record—as the Medical Research Council has confirmed. We do indeed have our share of accidents. But they are accidents from the normal hazards of industry—from touching high-voltage accelerators, from falling off ladders and turning out into the main road without due care and attention. Even so our accident and sickness records are well below the industrial average.

A little over a year ago we had an accident to one of our Windscale reactors due to overheating during a routine operation. In the course of this accident it was, in the words of the Medical Research Council, "in the highest degree unlikely that any harm (was) done to the health of anybody, whether a worker in the Windscale plant or a member of the general public".

It is true, of course, that radiation can produce mutations and that we have carefully to preserve our genetic heritage which has been built up for tens of thousands of years of natural selection. We know, however, that fall-out from test explosions adds less than 1 per cent to the natural radiation dose which we receive whether we like it or not. By contrast diagnostic radiology almost doubles the natural radiation dose in some countries.

Provided, therefore, that we continue to treat the safety of reactor operations and radiological protection seriously and with the full power of the scientific method, we can go ahead with the development of atomic energy without fear.

Scientific co-operation

There is another aspect which makes atomic energy a great factor for good in the world. This is the immense amount of international co-operation which is being built up and which can help to link the world in a friendly way. Many countries have individual agreements with both Britain and the United States for exchange of materials and information, and in addition there are the great international organisations such as the International Atomic Energy Agency, Euratom, the O.E.E.C., and the European Centre for Nuclear Research in Switzerland.

These give many opportunities for friendly contacts and even for working together, as in the case of the joint O.E.E.C. project in Norway. As the peaceful uses of this great new source of energy are developed more and more throughout the world, nations will find themselves more closely linked together and this will give another reason for making them even more reluctant to engage in wars.

Personalities of the Thirteenth Assembly

by FRANCES BOYD

WHAT makes for good committee work? Probably the most important single factor is a good chairman—and with membership of UN Assembly committees now at the almost unmanageable figure of eighty-one, good chairmen for them are more vital than ever.

At the thirteenth session the Political Committee was chaired by Dr. Miguel Rafael Urquia of El Salvador; the Special Political Committee by Mr. Mihai Magheru of Roumania; the Economic and Financial Committee by Mr. Hagiwara of Japan; the Social, Humanitarian and Cultural Committee by Mrs. Lina Tsaldaris of Greece; and the Trusteeship Committee by Mr. F. H. Boland of Ireland.

Below we give brief profiles of each.

"A real challenge" is how Dr. Urquia described the job of chairing the political debates. Fortunately he had great experience to guide him.

A lawyer by profession, he was Minister of Foreign Relations and Justice before he became El Salvador's Permanent Representative at the UN in 1951. Since then he has taken part in every Assembly, been President of the 20-nation Latin-American group, President of the Trusteeship Council and Vice-President of the 1956 Assembly.

A young-looking 54, he had the stamina needed to push the Political Committee—always the last to finish its agenda of thorny questions such as disarmament, Cyprus and Algeria—through on time.

"He loves reading, music and sport, but he works so hard that he can never enjoy any of them," said a friend of Mihai Magheru.

Born in 1910 Magheru also is a lawyer; he studied in Paris and speaks French as well as he does Roumanian. His first diplomatic post abroad was in Switzerland in 1948. Subsequently he went to Washington, home to Bucharest, then to India and to the UN.

He likes to spend his few spare moments with his wife, who is keenly interested in colour photography, and his small son who has been going to the UN International School since his father became Roumania's Permanent Representative at UN headquarters last year.

A slim, dapper man, equally at home in English and French, Mr. Hagiwara is a career diplomat who has wider experience of UN affairs than any of his colleagues at the Japanese Foreign Office.

Since 1950 he has represented his country regularly at meetings of GATT and Unesco's Executive Board; and when he became Ambassador to Canada last year he was elected President of the International Civil Aviation Organisation whose headquarters is in Montreal.

He still finds time for an occasional game of bridge—he was once Japanese champion —and golf. His wife worked in the Foreign Office in Tokyo until her marriage; they have a 10-year old daughter.

Daughter and wife of Prime Ministers and herself an ex-Minister of Welfare and Hygiene and the first woman cabinet minister in Greece, Mrs. Tsaldaris holds a unique place in the history of women's emancipation in her country.

As President of the Hellenic Federation of Women's Clubs she built a common front of the seven leading women's organisations. As a result of their campaigning, votes for women were granted in 1952.

Her working day is long — generally 8.30 a.m. to 11 p.m.—and her interests are wide. At home she directs or takes a leading part in a dozen bodies ranging from the Unesco National Commission to the Social Assistance Organisation and the Greek Red Cross.

"It's rather unusual for a European to be Chairman of the Trusteeship Committee," Mr. Boland smilingly observed on his election. "Perhaps I was chosen because of Ireland's anti-colonial past."

A Dubliner, born in 1904, Frederick Boland went first to Trinity College ("I used to be in the dance band and still play the piano for relaxation") and afterwards to Harvard as a Rockefeller Research Fellow. He then became a diplomat, and was head of the Department of External Affairs' League of Nations section before the war.

Now Ireland's Permanent Representative to the UN, he thinks that "basic issues are discussed more frankly" there than in pre-war Geneva.

The Twelve-Mile Itch

by ALASTAIR BURNET

who is on the editorial staff of *The Economist*

HALF a league, half a league, half a league onward . . . the claims to extend territorial waters beyond the old three-mile limit are gathering force. Now only about a quarter of the maritime countries in the United Nations still stand by three miles; this depleted convoy is shepherded by Britain and the United States. The others have all struck out on their own.

Their ambitions vary with military or economic calculation; sometimes with temperament. Norway and Sweden claim four miles; Greece, Italy and Spain want six; the Soviet Union and Yugoslavia have already taken twelve. Communist China has just declared a twelve-mile limit, insisting that it applies to Formosa too. Some of the South Americans like the sound of two hundred miles.

To the Icelanders, engaged in a war of words and fish-heads with the British distant-water trawler fleet, all this confirms their contention that every State has the right to extend its fishery limits unilaterally, to twelve miles at least. But gloomy trawler owners in Hull and Grimsby say the edge of the continental shelf is what Iceland is really aiming at.

Any dispute with fishermen in it is not likely to be conducted in diplomatic language, and complicated arguments over base-lines — drawn from headland to headland across the mouth of deep bays —can go by the board when a skipper is following the fish, and night, or fog, gives him a chance to go in and fill his hold. Wherever the fish are, the tussle goes on. The Icelanders want to keep other people out; so do the Faroese. The Norwegians say that if they cannot go to Iceland no one else can go to Norway. The Canadians resent the Americans off Newfoundland. Scottish inshore fishermen would like to close the Moray Firth to the French and Belgians. It is too much to expect one law to satisfy everybody.

History is no help. The three-mile limit was an effective gunnery range at the time it first became fashionable; essentially, it was imposed on the world by British sea power. But before that the distances fluctuated, not only in leagues —the nautical measurement—but in the accepted length of the league itself. In fact, Iceland has asserted that its historic fishery limits—four leagues—were the equivalent of sixteen miles in mid-nineteenth century and as much as thirty-two in the seventeenth.

More pertinently, an Anglo-Danish agreement in 1901 laid down a three-mile limit for both Iceland and the Faroes. But when Iceland became independent it abrogated the agreement and pushed its fishery limit out to four miles in 1952, ostensibly to protect the fish stocks on which over 95 per cent of Iceland's trade depends.

The British trawler owners' answer— which some of them have since regretted —was to enforce a ban on the landing of Iceland fish at British ports. Before the ban was lifted Iceland had sought new markets behind the iron curtain, and its economy is now partly dependent on the Soviet Union which, for political reasons, has encouraged these new ties. Iceland's partners in NATO are deeply concerned at this purposeful wooing.

When, in September, Iceland declared a twelve-mile fishery limit, all the major trawling countries, but particularly Britain and West Germany, protested; and since then British trawlers have fished under naval protection in three "boxes" off the Iceland coast, within the twelve-mile limit. Iceland is taking its case to the UN General Assembly, Britain hopes for better results either at the International Court at The Hague or in a

special conference, particularly if it could be confined to the North Sea Powers directly concerned.

The Faroe Islanders, who live by fish and dream of nationhood, have now asked Denmark, which is still responsible for their foreign affairs, to declare a twelve-mile limit for them too. Talks are going on between Britain and Denmark, and Britain is believed to have offered an inner six-mile territorial limit and an outer six-mile zone in which fishing rights would be restricted to countries with historic rights in those waters.

This proposal closely follows the United States plan at the last conference on the law of the sea at Geneva earlier this year. The voting was inconclusive—no proposal getting the necessary two-thirds majority—but the American suggestion, which had British backing, came closest to acceptance. Its chances were blighted, not by fishing but by the naval contest between the Americans and the Russians. The Soviet Union insists on twelve miles for defence — although it lets British trawlers fish within this limit on parts of the North Russian coast — while the United States, fearful of a world-wide twelve-mile limit that would allow the Russian submarine fleet greater power of manoeuvre in neutral waters, will have none of it.

Is there a solution for the fisheries? The British trawler owners concede privately that with their modernised fleet they could accept twelve miles and still beat their rivals. But they want a guarantee that Iceland would not extend its limits again—for fifty years at least. It is on this that any settlement will depend.

WUFUNA meets in the Belgian Senate

by CHARLES JUDD

Director-General of British UNA

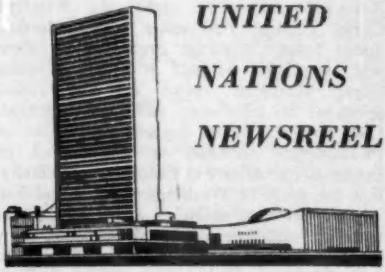
I HAD spent a few days of leave wandering around the art galleries of Holland and Belgium and there, standing behind the president during the opening session of WFUNA's Plenary Assembly, was a Rembrandt come to life. A fine old soldier in the uniform of an officer of the Belgian parliament. I shall remember his weather-beaten countenance and rugged head, stiff as a sergeant-major's when he called us all to our feet whenever Professor Ago or our own General Sir Ronald Adam arrived to preside over a plenary session or a meeting of the education and programme commission, but mobile as a woman's as he anticipated their every wish, appreciated the finer points of our debates or tried to hide his smiles at our occasional jokes. The simple dignity and kindliness with which he and his colleagues treated all of us between the sessions somehow symbolised the subtle blending of tradition and informality which made the welcome extended to the Thirteenth Plenary Assembly of WFUNA in Brussels this September so remarkable.

Thanks to the wonderful arrangements made by Henri Cochaux and his colleagues we were magnificently entertained by the Foreign Secretary of Belgium, the Belgian UNA, the UN and the Belgian Commissioners for the World Exhibition and the European Coal and Steel Community. The whole of the Senate House with its debating chamber, committee rooms, offices and restaurants was placed at our disposal, with a never-ending service of tea and coffee in the smoking room and even stacks of the Senate's own notepaper set out for our private correspondence! And, when the work was over, we were for two more days shown the priceless treasures of Ghent and Bruges and the marvels of the World Exhibition dedicated to the theme of man in the service of man.

We came from the United Nations Associations of the U.S.S.R. as well as the U.S.A., and from as far away as Tokyo and Melbourne, Buenos Aires and Ulan Bator. There were great and famous people like Monsieur Paul-Boncour, Mrs. Roosevelt and Senator Henri Rolin to inspire us, many with great experience in political and international life and many more to express the idealism of youth

and the hopes of the rank and file. But we achieved a remarkable degree of unanimity on questions as diverse as the financing of aid to the under-developed countries, refugees and education, and as controversial as disarmament. The only real row arose from an American attempt to have us all recognise as the Chinese member of WFUNA the emigré group that has been working hard for some years in Formosa and to exclude from the agenda a recommendation made by WFUNA's Executive Committee in June to admit the United Nations Association of Outer Mongolia.

In the end common sense prevailed and the Assembly decided to postpone both these controversial issues until next year, while it unanimously admitted the UNA of Malaya. In the meantime a review committee is to recommend what changes in WFUNA's constitution and methods of work might now be useful. Our hope is that it will be possible to secure unanimous agreement that, without regard to the ideology or political status of the territory in which they operate, membership of WFUNA should be open to *all* associations that do not pretend to cover a wider area than they can and which are genuinely working to promote a better understanding of the United Nations and support for its principles.



UNITED NATIONS NEWSREEL

POLITICAL

Middle East. Simultaneously with the Secretary-General's disclosure of the "practical arrangements" which he had made for carrying out UN aims in Lebanon and Jordan, the U.S. and the U.K. Governments announced their plans for the early withdrawal of their forces from the two countries. The last of the 14,000 American marines left Lebanon on October 26th, a week ahead of schedule. The British withdrawal from Jordan, begun on October 20th, was completed on November 2nd.

United Nations Emergency Force. The Special Political Committee of the General Assembly noting the effective way in which UNEF continued to carry out its function, requested the Budgetary Committee to recommend such action as might be necessary to finance the continuing operation of the Force.

UN Stand-by Force. No United Nations "stand-by" force will be created by UN at present. Early in November the General Assembly's Political Committee decided, on the advice of the Secretary-General, that no immediate action should be taken.

The report was based on a study of the experience derived from the establishment and operation of UNEF. It doubted whether a "stand-by" force would have great practical value at the present time or whether it would warrant the "substantial sacrifices" involved. UNEF was a unique operation and it is unlikely that the circumstances would be duplicated elsewhere. Neither in Lebanon nor in Jordan would it have been possible to interpose a UN force between conflicting parties. The Secretary-General concluded that, in any future conflict in which UN might be asked to intervene, the actual organisation required would depend on the particular needs of the situation and could not therefore be determined in advance.

DISARMAMENT

General Assembly. The Political Committee, against the wishes of the U.S.S.R., decided not to give priority to the issue of nuclear tests. Discussion, therefore, took place on a group of three related items—cessation of tests, reduction of military budgets, and the question of disarmament.

A resolution, sponsored by seventeen nations including U.S.A. and U.K., was adopted by the General Assembly on November 4th, by a vote of 49–9 with 22 abstentions. It urged first that, in the negotiations between States that had tested nuclear weapons, the parties should make

every effort to reach early agreement and should refrain from further testing during the negotiations. Secondly, the resolution called attention to the importance and urgency of achieving the widest possible measure of agreement in the technical talks on guarding against the possibility of surprise attack. Finally, the continuation of recent initiatives, including the technical approach, was urged with a view to contributing to a balanced and effectively controlled world-wide system of disarmament.

The General Assembly, as a gesture to the Soviet Union, agreed to increase the membership of the Disarmament Commission to include all eighty-one members of UN, "for 1959, and on an *ad hoc* basis".

Nuclear Tests. The conference between the three Powers which had carried out nuclear tests opened in Geneva on October 31st. The U.S.S.R. wished to get an immediate agreement on the discontinuance of tests, with control left for later discussions. The U.S.A. and U.K. began by urging that control should be discussed first, leading on to the ending of tests. Later they suggested that both matters should be discussed as one item, neither having priority.

The situation was complicated by new Russian tests after the opening of the negotiations—despite the General Assembly resolution urging the three countries to refrain from further testing during the conference.

ECONOMIC AND SOCIAL

Special Fund. At a pledging conference at UN headquarters, seventy-six governments promised to contribute approximately $21m. towards the expenses of the first year of the new Special Fund, which will assist the integrated economic development of the less-developed countries.

REFUGEES

UNRWA and UNHCR. At another pledging conference during the General Assembly, governments of UN member and non-member States undertook to make special contributions towards UN refugee programmes. For the UN Relief and Works Agency (Palestine refugees), approximately $27.5m. was pledged by thirty-three governments—slightly more than last year. For refugees under the mandate of the UN High Commissioner, $3,127,000 was promised by twenty-six countries.

L. R. A.

The "A" in UNA

Stocktaking

Between January and April, branches are expected to hold their Annual Meetings where, amongst other things, officers and committee are elected and audited accounts submitted. By rule, the Annual Report and Statement of Accounts—taken up to December 31st, 1958—are to be sent to the Regional Officer for eventual transmission to Head Office.

A busy time in the States

Dame Kathleen Courtney, President of UNA, spent over two months in the United States this autumn, visiting her many friends and attending the UN Assembly in New York. She was asked by British-American Associates to speak under the Winifred Cullis Lecture Fellowship and addressed about twenty meetings organised by them and by others. As part of her programme Dame Kathleen spoke on the radio, appeared on television, addressed a British Day luncheon at a departmental store in Philadelphia, lectured to the School of International Affairs at Columbia University, met the press of Washington D.C., and had one of her best meetings at Berea College with an audience of 1,500 students. Few would have had Dame Kathleen's vigour to undertake the tour and to return looking all the better for it.

Going and coming

On the last day of 1958 Miss M. B. Stephens, head of the Association's Finance Department, retired after what is likely to remain an all-time record of continuous service. She joined the staff of the League of Nations Union on February 19th, 1919, and has been with the old and the new "firm" ever since. The discipline of "figures" is that they are either right or wrong. Miss Stephens' have always been right and her books a delight to the eye. Whatever the pressure—and the two great appeals for children and for refugees provided plenty—nothing ruffled her temper or affected her courtesy. "We hereby certify that no organisation has ever been better served" is the final audit on all these years. May she have many more in which to enjoy her family, her church, and her hobbies.

Early autumn saw the departure of Miss

Group Captain Leonard Cheshire, V.C. (third from left), principal guest and speaker at UN Day Dinner of Bristol Branches held in the University. Over 100 members attended.

Fripp, who dealt mainly with visual aids and UNESCO book coupons, and Miss Rogers who had been Mr. Ennals' secretary both in CEWC and in UNA. With eight years of excellent service behind each of them, Miss Fripp has gone to a job in the Middle East, and Miss Rogers to one with the National Y.W.C.A.

The Regional Officers have recently been brought up to full strength by the appointment of Mrs. J. M. Stephens to the North East, Mr. J. W. Sinclair to the North West, and Mr. M. J. Harris as National Officer for Scotland. Mrs. Stephens was a W.R.A.F. officer in the war and is Chairman of the big R.A.F. Association Branch in Newcastle. Mr. Sinclair has for a number of years been Warden of a Miners' Welfare Centre near Whitehaven, and Mr. Harris is a young man with a good record of lay service to the Church of Scotland.

Miss Stephens' successor is Mr. Charles Dickens. Until that country chose to be independent, Mr. Dickens was a distinguished treasury official of the Malayan Government.

Welcome and good wishes to all four of our new friends.

In remembrance

It is with deep regret that the deaths of several devoted workers have to be recorded. Miss Agnes Fry was Honorary Treasurer of Brent Knoll Branch; the Reverend J. R. Presland was Membership Secretary of Bath Branch but had also been a member of the South Western Regional Council and had represented it on the Standing Conference; Mrs. Leigh Williams, formerly Honorary Secretary of Westminster Branch, had organised the Refugee Appeal in that area, and was on the Executive of the London Region; Miss B. Wright was Honorary Treasurer of Hessle Branch and had been since its inception in 1951.

Each was a shining example of the power of grace and conviction. The Association remembers them with affection and extends its sympathy to their families and friends.

H. W.

Letters

The article in the summer issue "Is too much policy good policy?" continues to attract an interesting correspondence. A selection of letters is reproduced below:

Those of us privileged to work with Robin Howard in UNA International Service know of his concern for the practical expression of our beliefs and of the sincerity of his fear that the Association may lose respect and support if controversial policy statements and unwelcome publicity create a false image of the Association in the eyes of the public.

Relief work of any kind is basically repairing the damage caused by war, and while it is comparatively easy to enlist support for this side of our work, I believe that we should be only half carrying out our task if we did not at the same time try to study the causes of war and the ways of settling international disputes. We are an Association for the United Nations, and the

primary aim of UNO at the time of its inception was to seek to provide the basis for a better world. This can be done, not only through patching the wounds of the old order, but by actively seeking to exert pressure on governments and peoples to conduct their affairs with this aim in mind. This will inevitably bring UNAs into conflict on occasions with governments or parties.

I agree with Robin Howard that too often UNA is categorical in a situation which demands hesitation or humility of approach, but this is surely a risk which we should be prepared to take, and we should be grateful to Robin Howard for reminding us of the danger of tilting the balance too far.

JOHN H. LYON,
Sheffield 10.

"Is too much policy good policy?" was discussed by our Committee. We have been somewhat disturbed by the recent detailed policy statements by the Executive Committee and in particular by the eighteen-point declaration of policy passed at the General Council in 1957. We have on our Committee members of various political parties and of differing religious views. What unites us is support for the idea of a United Nations. We felt that as a basis for discussion the pamphlet *Operation SUN* was an excellent example of the way in which our Association could stimulate interest in and discussion about the UN. But to come forward in the short space of a few months with a detailed policy could, in our view, only tend to split the Association as suggested by Robin Howard. The more detailed our policy, the more scope there is for people to say, "I don't agree with that, therefore I won't join". It is not much of an exaggeration to say that we have only achieved unanimity on our Committee by deciding the ignore the detailed policy altogether. We consider that the aims of the Association provide ample opportunity for our work of supporting the UN and hope that in future the Executive Committee will ensure as far as possible that it is broadly carrying the membership with it in any policy statement it may make.

L. E. LEFEVRE,
Chairman,
Slough Branch UNA.

I do not agree with Mr. Robin Howard's contention that UNA is in danger of having "too much policy". I think that UNA members have a right to know what is the official view of their Headquarters Executive on any important international question.

Statements of policy have a twofold value. They notify members of the official attitude of the organisation, based on careful and informed consideration; and they contribute to the volume of vocal public opinion which must have weight with any government. Personally I should feel that UNA was indeed a spineless organisation if it had had no statement to offer on such matters as Suez, Hungary, and nuclear weapons.

As a speaker for many years for UNA I should be at a loss if I could not tell my audience what was the official attitude of UNA on any important question then disturbing the public mind. A general vague attitude of support for the United Nations is not good enough in these difficult days. There are times when the matter must be sharply and clearly focused in the light of our principles.

E. LIVESEY FOWLER,
Chairman,
Croydon Branch UNA.

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